Weekly Summary Report
USEPA Oversight, Sauget Area 2, Sauget, IL
WA No. 224-RXBF-05XX / Contract No. 68-W6-0025

Week Ending Friday, August 13, 2004

This report summarizes the Interim Remedial Action (IRA) work conducted by Solutia and its contractors from August 6 through August 13, 2004 at Site R, Sauget Area 2. The current IRA fieldwork consists of site preparation, barrier wall trenching, and backfilling, with excavation performed on day and night shifts.

Contractors Onsite

Inquip Associates Inc. (barrier wall construction contractor)
PSI (geotechnical testing subcontractor)
Aerotek (air monitoring subcontractor)
URS (primary consultant for Solutia)

Work Performed This Week

Work at the site continued with excavation and backfill activities on the remaining open trench, formerly referred to as the "northern trench segment" in previous weekly reports. (Backfill in the southern trench segment was completed during the week ending August 6, 2004). Backfill was placed into the open trench on five days during the week.

Excavation activities continued with the Liebherr 843 and Liebherr 853 hydraulic clamshells on four days during the week and with the Koehring 1266 trackhoe during one day of the week. By the end of the week, the open trench extended to approximately 900 feet in length.

Excavation activities were estimated to be 83 percent complete by the end of the week, with backfill activities at approximately 63 percent complete.

Groundwater Migration Control System (GMCS)

The river elevation rose early in the week, from 389.71 feet above mean sea level (amsl) on August 6 to a maximum elevation of 391.99 feet amsl on August 7. Following that peak, the river level decreased to 385.48 feet between August 7 and 13. The combined flow rate of the extraction well system decreased from 1,161 gallons per minute (gpm) on August 6 to 1,074 gpm on August 7. As the river level increased in the latter part of the week, the pumping rate slowly increased to 1,380 gpm by August 13.

Eight barrier wall piezometers, with four inside and four outside the barrier wall alignment, monitored the groundwater elevations adjacent to the barrier wall alignment during the week. Table 1 shows the river and piezometer water elevations measured on August 13, 2004 (1:00 PM).

The piezometer pairs generally showed an outward gradient across the barrier wall during

the week, with between 0.5 to 4 feet difference between the piezometers located inside of the wall alignment and the corresponding piezometer outside of the wall alignment. During the week, the river level was generally lower than the water levels at the piezometers located inside the barrier wall alignment. The river level remained generally higher than the piezometers located outside the barrier wall during the week (now constructed at all piezometer pairs except P1).

While the barrier wall is under construction, the GMCS is being operated using a lookup table presented in Section 5.3 of the Focused Feasibility Study (FFS) for Sauget Area 2 Sites O, Q, R, and S (URS, 2003). This lookup table corresponds to Groundwater Alternative C (Hydraulic Barrier), in which groundwater extraction wells are operated without the presence of a barrier wall. This lookup table is being used on an interim basis until the construction of the barrier wall is complete.

According to the FFS description of Alternative C, "[g]roundwater levels will be monitored at the hydraulic barrier to determine if gradient control is achieved. Gradient control will be determined by comparing the water-level elevations in four fully penetrating water-level piezometers to surface water levels in the Mississippi River". These piezometers are located inside the barrier wall alignment (Piezometers 1S, 2E, 3E, and 4E).

Throughout the week, the GMCS appears to have been operated in accordance with the Alternative C lookup table. However, the inward (towards Site R) or equal gradient between the river and the inside piezometers was not maintained through the entire week.

Table 1
River and Piezometer Water Elevations – August 13, 2004 (13:00)

	Elevation (ft above mean sea level)
River Level	385.48
Piezometer 1S – inside wall (northern-most pair)	387.77
Piezometer 1N – outside wall (northern-most pair)	387.23
Piezometer 2E – inside wall (north-central pair)	388.70
Piezometer 2W – outside wall (north-central pair)	383.58
Piezometer 3E – inside wall (south-central pair)	387.50
Piezometer 3W – outside wall (south-central pair)	383.83
Piezometer 4E – inside wall (southern-most pair)	387.75
Piezometer 4W – outside wall (southern-most pair)	386.38

Stormwater

No stormwater activity took place this week.

Barrier Wall Construction

Inquip continued excavation of the open trench along the barrier wall alignment, extending

the trench excavation to station 31+40. As of August 13, the open trench was approximately 900 feet in length.

Inquip continued excavation in the open trench during a night shift. During this shift, one hydraulic clamshell rig excavated spoils from the trench, and slurry was pumped into the trench as necessary. No backfill activity occurred during the night shift.

The Koehring 1266 trackhoe excavated material from the open trench during one day of the week. The Liebherr 843 and 853 hydraulic clamshells both operated on five days during the week, but were idle at different times as routine maintenance or minor repairs were performed. On one day of the week, the Liebherr 843 clamshell was idle due to space constraints between excavators.

During the week, depth profiles in the open trench were measured daily. Table 2 summarizes the trench depth profile that was measured on August 13. On Graph 1, these measurements are depicted in comparison with the trench depth profile measured on August 6. Graph 2 shows the overall progress of the barrier wall construction.

Slurry

Approximately 108 tons of bentonite gel were used to mix fresh slurry on five days during the week. Fresh slurry, when pumped from the holding pond to the open trench near station 24+50 and/or station 31+20, was tested frequently to assess its viscosity and adjusted with a blending pump using water from the fire hydrant as necessary. The viscosity of the slurry was measured using a Marsh funnel, with results generally meeting the specification.

Fresh slurry was pumped into the open trench as needed to keep the excavation open on five days during the week. Slurry samples were collected from the top and the bottom of the trench daily and were tested for viscosity, density (unit weight), filtrate loss, pH and sand content. Analysis of fresh slurry and trench slurry samples from the trench segment either met the specifications or satisfied the quality targets.

Spoils Handling

During the week, spoils were transferred from locations adjacent to the open trench or from the temporary stockpile on top of the landfill to the backfill mix pad near station 6+50.

Backfill and Trench Cleaning

During the week, Inquip mixed and placed approximately 1,770 cubic yards of backfill material into the open trench. Backfill operations took place on five days during the week. The backfill spoils were mixed with approximately two percent of dry bentonite and slurry as necessary to meet quality specifications.

The backfill was tested by PSI for slump, unit weight and moisture content. The unit weight of backfill placed during the week ranged from 121 to 126.5 pounds per cubic foot (pcf). Slump test results were between 5.0 to 3.75 inches, and the moisture content results ranged from 21.5 to 23.9 percent. All test results met the minimum requirements. Tests on the backfill mixture to be conducted offsite by Mueser-Rutledge and PSI's labs included permeability and gradation. No test results from offsite labs were available this week.

Prior to backfill placement, the top of the backfill was cleaned over a 40-foot linear stretch. The Liebherr 855 mechanical clamshell rig was used for this purpose on four days of the

week, while the Liebherr 853 hydraulic clamshell was used during the last day of the week. Two samples were collected daily by PSI with a clam sampler from the top of the backfill prior to backfill placement. These samples were visually checked to ensure that the backfill surface in the trench was clean and free of any sand.

Other Activities

Aerotek performed the routine air monitoring conducted at Site R during the week.

On the afternoon of Friday, August 13, the presence of organic compounds was detected by Aerotek, the air monitoring subcontractor. Using a photoionziation detector (PID), Aerotek measured readings in the breathing-zone that ranged on average from 1 to 2.5 parts per million (ppm). The organics were believed to originate from the area where the Koehring 1266 trackhoe was excavating at station 33+15.

In response to the air monitoring data, on-site management and safety personnel made the decision to decontaminate the inside and outside of construction equipment (e.g., washing with water) that had come into contact with excavation spoils. To allow the organic vapors to dissipate and thereby minimize exposure to the operators, excavation spoils were hauled to the top of the landfill instead of directly to the backfill mixing pad. As a further precaution, the Koehring 1266 trackhoe remained idle during the afternoon to allow organic vapors in the trench to dissipate.

The action level for volatile organic compounds (VOCs) is a time-weighted average concentration of 3 ppm. As indicated above, PID readings did not exceed this threshold. On the afternoon of August 13, Drager tubes for chlorobenzene, benzene, and phenol were taken from the breathing zone. None of the compounds were detected in the Drager tube tests.

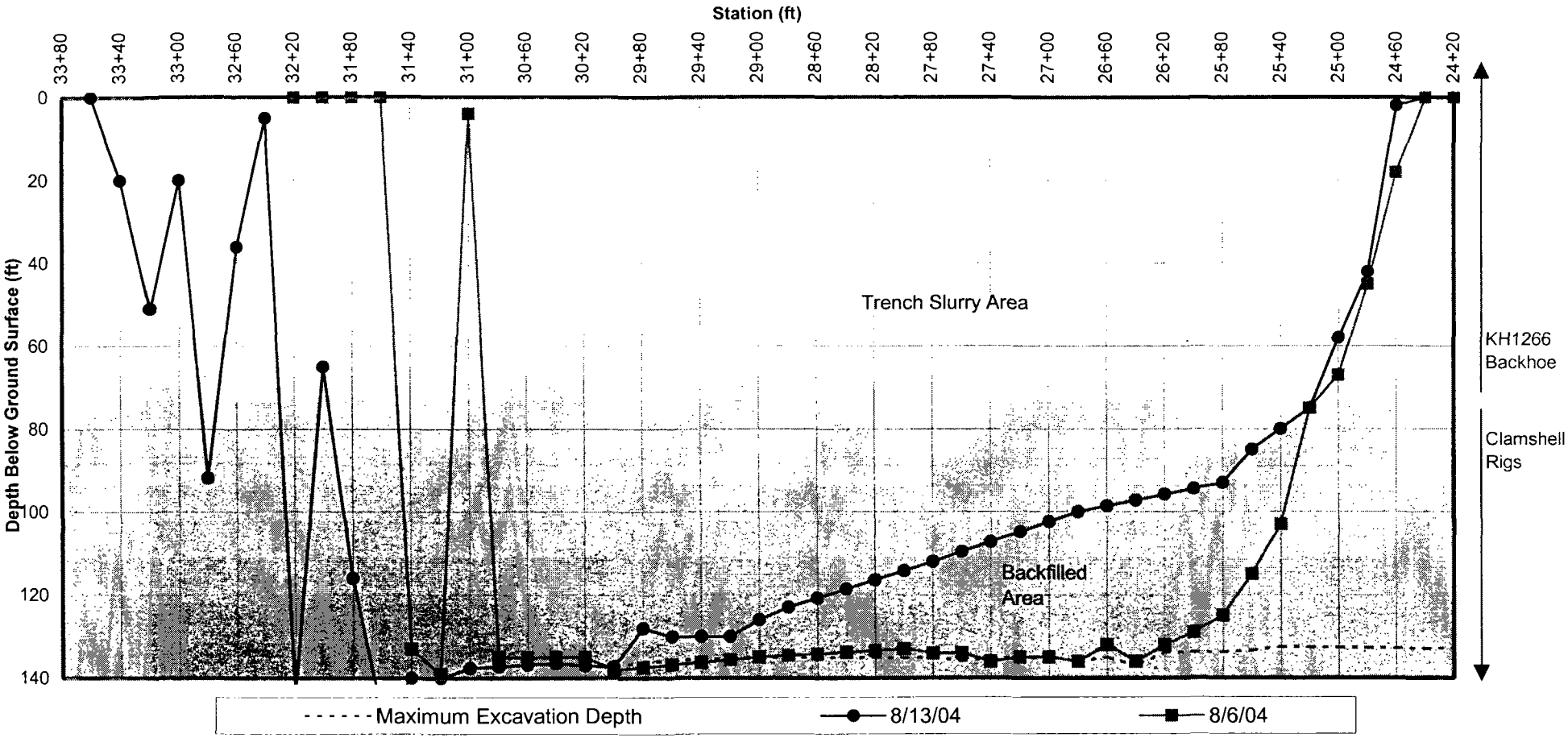
Inquip worked on equipment maintenance on Saturday August 7, 2004. General maintenance activities included minor repairs, changing of various filters and general greasing of equipment. Maintenance on Saturdays will continue in the future on an as-needed basis.

A new culvert and road for site access were completed during the week on the northeast corner of the site. This new site access was required as construction on the north leg of the trench progresses, blocking access to the site on Riverview Avenue.

Table 2
Trench Profile (Downrigger Measurements) for the Barrier Wall Trench – August 13, 2004 (PM)

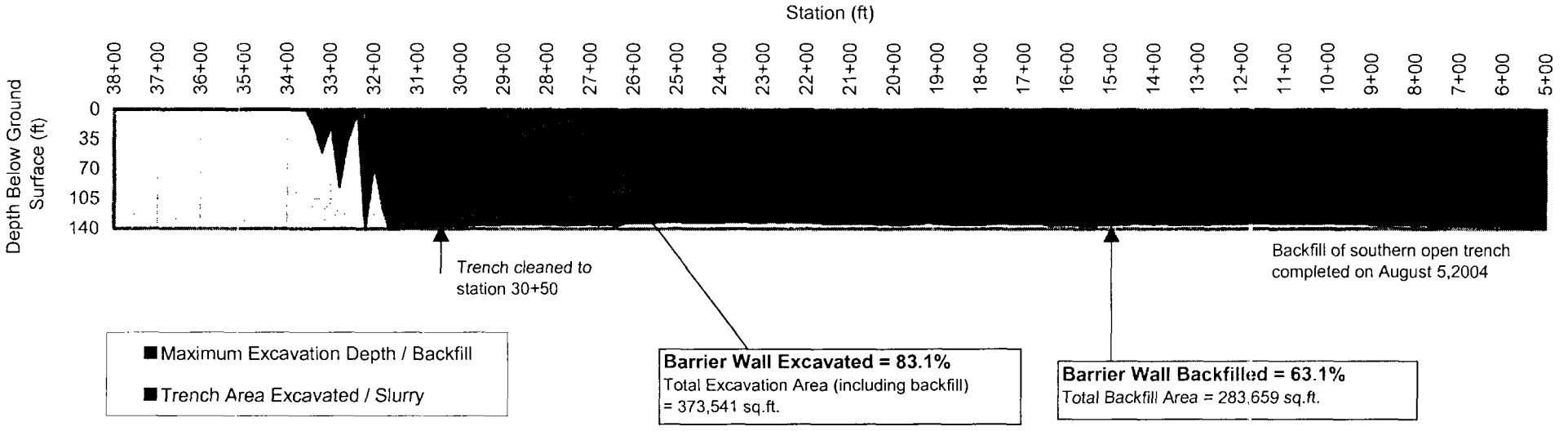
Station ID	Depth to bottom (ft below ground surface)
24+50	2
25+20	73
26+20	88
27+20	100
28+20	110
29+20	126
29+40	126
29+60	125
29+80	127
30+00	136
30+20	137
30+40	138
30+60	136
30+80	125
31+00	137
32+20	144
33+20	51
33+40	20

Graph 1 - Weekly Barrier Wall Construction Progress - Open Trench Segment
August 6 through August 13, 2004



Note: Data plotted for the week through measurements on 8/6/04 and 8/13/04.
Individual panels and wedges are present between stations 31+80 and 33+80.
Some data points are interpolated between the available data points where trench depths were read.

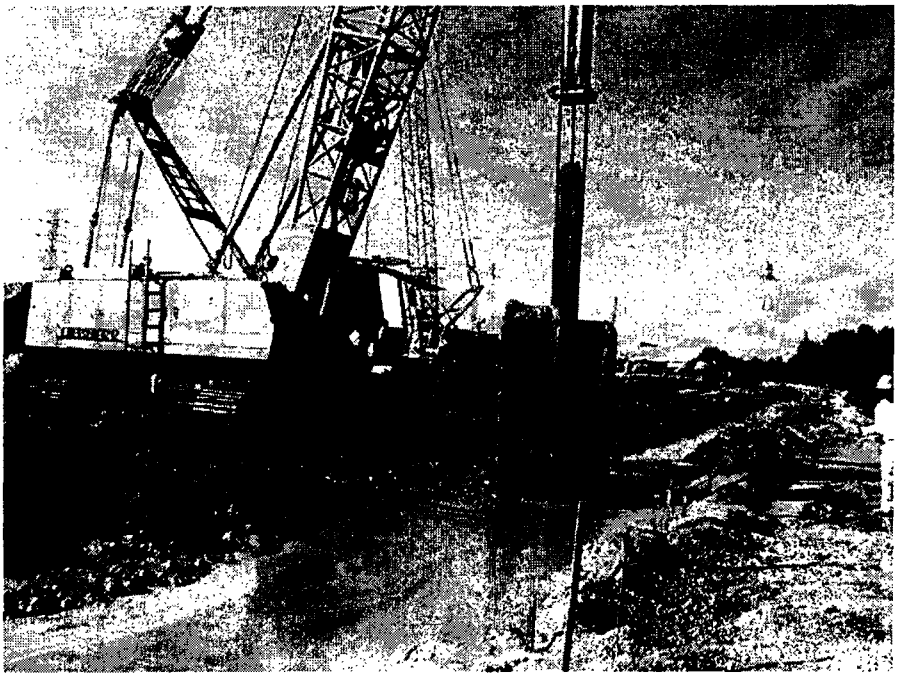
Graph 2 - Barrier Wall Construction Progress by August 13, 2004 (PM)



Note: Data plotted for the week through PM measurements on 8-13-04.

Photos from August 6, 2004 through August 13, 2004:

Koehring 1266 trackhoe begins excavating on the north leg of the trench. (August 13, 2004)



Liebherr 853 clamshell performing trench clean-out before backfill begins. (August 13, 2004)